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The Education Papers

The Future Is Not What It Used to Be

Re-examining Provincial Postsecondary Funding Mechanisms in Canada

Payam Pakravan

In this issue...

Current provincial funding mechanisms for postsecondary education do a very poor job of meeting the sector's goals of quality, accessibility and responsiveness to labour-market needs. It is time to consider alternative funding mechanisms, of which student-based funding holds the greatest promise.

The Study in Brief

Provincial funding mechanisms for postsecondary education (PSE) are outdated. They do a very poor job of meeting the goals of quality, accessibility and responsiveness to labour-market needs that the sector should be striving for. The vast majority of provincial funding is delivered as block funding through formulas or incremental funding mechanisms. This is an opportunity lost. Such mechanisms are a legacy of days gone by, when the main goal of government was to ensure adequate funding for rapid growth and, as this occurred, to treat the institutions equitably.

The author calls for a fresh approach to PSE funding. First, the objectives of government funding ought to be few in number and closely associated with the underlying rationales for government involvement in higher education. Second, funding should be carefully targeted towards meeting these objectives, and should be provided through mechanisms that create incentives for institutions to work towards meeting them. Incentives matter, but current mechanisms either don't provide them or provide the wrong ones. Third, the potential benefits of adopting student-based funding mechanisms cannot be ignored, and serious consideration ought to be given to the design decisions associated with the adoption of some form of student-based mechanism.

The study suggests replacing a significant part of current institutional subsidies with student-based funding. Institutions would continue to receive a basic amount of direct funding based on actual or moving-average enrolments. The remaining amount of public "operating" funding would be given directly to students, according to needs-based assessment criteria, perhaps in the form of a carefully designed voucher scheme. The third element of such an approach would be a more deregulated tuition regime, in which institutions would have more freedom to set differentiated tuition fees, subject to meeting accessibility criteria.

Finally, provincial governments must acknowledge the important contributions of the federal government to the PSE system and work with it to develop a coordinated approach to PSE funding. Ottawa's approach to this issue has been increasingly effective, and the provinces have much to learn from their federal counterpart.

The Author of This Issue

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The decline and fall of provincial funding of postsecondary education (PSE) in Canada has attracted much attention of late, largely because of the associated rise in tuition fees in many provinces. Across the country, there are calls on governments to pour more money into the system, and a most instructive debate is emerging about the total amount of funding needed by our universities and colleges, and the contribution that government — and students, through tuition fees — should be making to it. These are important questions, and the way we answer them will have a considerable bearing on the kind of PSE systems we have in Canada.

Lost in the midst of this debate about the right level of PSE funding and the right public-private mix of funding, however, is another crucial question; namely, how *effective* public funding is in meeting its objectives. After all, the ultimate objective is not to have the best-funded postsecondary system in the world, but to have the highest-quality and most dynamic, responsive and accessible system we can. The debate would be much more useful if it were to be framed according to what we wish our colleges and universities to produce, and if it concentrated on the policies and mechanisms that help create an environment in which these outcomes are achieved.

To be sure, institutional revenues are an important determinant of these outcomes, but to pretend they are the only one is to succumb to the fallacy of input-based policymaking — an approach that allows for very little debate beyond the question of how much money our postsecondary institutions should be getting, and from where. Though it is important to recognize the pivotal question of adequate resources, the challenge is to avoid being straitjacketed by it.

With this challenge in mind, the purpose of this *Commentary* is to re-focus attention on the *efficacy* of provincial PSE funding. I do so by examining the mechanisms by which public funding is distributed to colleges and universities in Canada, and by analyzing the effectiveness of those mechanisms in bringing about the kind of PSE system outcomes we want. It turns out that the current mechanisms — consisting largely of subsidies to institutions based on formulae or on historical funding levels — are a legacy of decades past, when the most pressing need was to expand the system and when provincial hegemony in PSE funding gave government full control over the rate at which this took place.

Those days are gone. The higher education landscape has changed dramatically, especially in the past decade or so. Provincial governments, though still a major source of funding, have lost their financial stranglehold on PSE systems; in most provinces, the government now provides less than half of all institutional revenues. Ottawa has re-emerged as a key player, not necessarily because it is spending more, but because it has undertaken a series of strategic policy initiatives targeted at research funding and student aid. Corporate Canada has become a more visible sponsor of research and infrastructure expansion and renewal. New public attitudes toward the purpose and importance of higher education have emerged, with less emphasis on the virtue of learning (and research) for its own sake, and more on its economic significance. And with

I am thankful to C.D. Howe Institute staff and a number of referees for helpful comments. Any remaining errors are mine.

students paying higher fees and providing a greater share of total system funding than ever before, the demands for higher standards and quality of education are increasing.

All of these changes point to a new era for higher learning in Canada. Yet the existing funding mechanisms do a poor job of dealing with these new circumstances. It is time for the provinces to reconsider their role in the postsecondary system and to think carefully about how best to target and allocate their resources. A new mindset is needed. The future of PSE in Canada is not what it used to be.[1]

I call for a fresh approach to funding. Provincial funding mechanisms must give clearer expression to key policy objectives and create incentives for achieving them; they must make the system more inherently responsive to student preferences and labour market needs; and they must take greater account of the funding role played by Ottawa and the private sector. If the provinces are serious about improving the accessibility of PSE, the quality of its outcomes, and its responsiveness to changing exigencies, then there is a strong case to be made for moving from institutional- to student-based funding.

Such a change would be a significant departure from the current method of funding, and it may take time to raise public awareness and build the political will necessary for such a change. A useful first step would be for the provinces to remove the barriers that prevent institutional funding mechanisms from creating incentives to improve postsecondary instruction. In addition, it is imperative that the provinces sit down with Ottawa and adopt a coordinated approach to PSE funding, especially with respect to student assistance and research funding. That said, the primary subject of this paper is provincial *operating* funding to colleges and universities. Other, admittedly important, aspects of public PSE funding, such as support for research, capital and infrastructure spending, and student aid programs are alluded to, but they are not explored in any great detail.[2] The intention is not to deny their importance but rather to concentrate on what is, by far, the largest component of provincial spending on postsecondary education.

After giving an overview of the financing of Canadian higher education systems, I draw attention to a number of policy objectives that provincial governments would be well advised to focus on. Then I outline the essential features of a conceptual framework — centred on the notion of *agency* — that highlights the importance of incentives in PSE funding. I next describe and evaluate the funding mechanisms employed by the provinces, before suggesting an alternative. I end with a brief discussion of policy imperatives and concluding thoughts.

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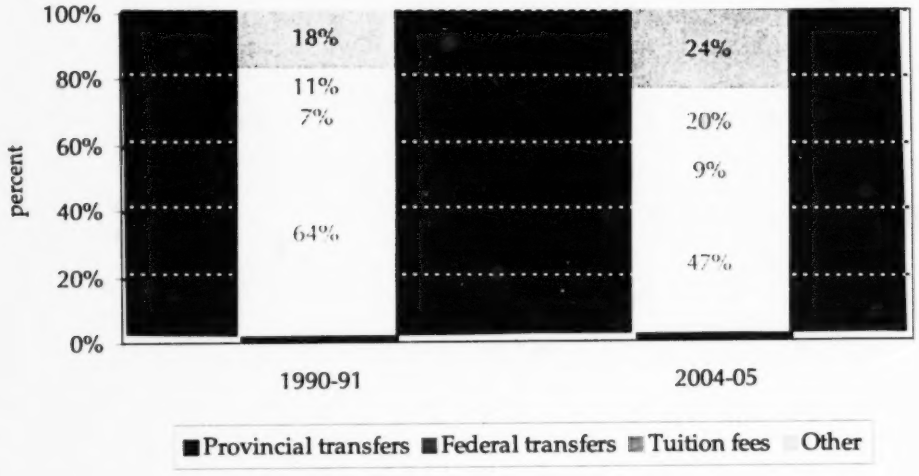
1 I have borrowed this phrase from a comment by Stefan Dupré, quoted in Cameron (1991, 227), who used it in reference to projections of decline in Canadian university enrolments in the mid-1970s after decades of rapid expansion.

2 For a good overview of student aid policies and spending in Canada, see Junor and Usher (2004).

Figure 1: *University and College Revenues by Share, Canada*



Source: Statistics Canada, CANSIM, Table 385-0007

An Overview of PSE Funding in Canada

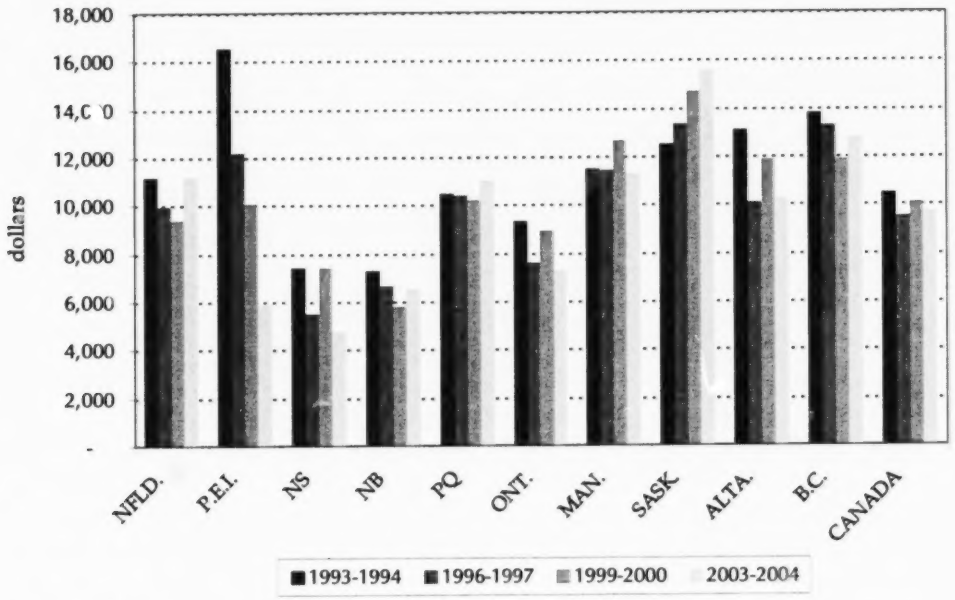
PSE spending in Canada is high by international standards. In 2001, the most recent year for which comparable data are available, total PSE spending in Canada as a percentage of GDP was 2.5 percent, second only in the OECD to the US and South Korea (both 2.7 percent) and about twice the OECD mean (1.4 percent). About three-fifths of this spending was public, higher than in the US (one-third) and Australia (one-half), but lower than in most European countries (OECD 2004, Tables B2.1 (b) and (c)).

Provincial government grants have traditionally been the largest single source of revenue for postsecondary institutions, and they still are. As shown in Figure 1, almost half of university and college revenues in fiscal 2004/05 were in the form of provincial operating and capital grants. The most notable feature of Figure 1, however, is the dramatic decline in the proportional contribution of provincial governments to total PSE revenues since 1990/91. In almost all provinces, this has coincided with significant increases in the share of revenues provided by tuition fees.[3] It is also worth noting that underlying the Canada-wide data in Figure 1, there is a significant (and increasing) inter-provincial variance in provincial funding shares, now ranging from around 35 percent in Nova Scotia, to around 61 percent in Quebec.

The decline in provincial funding share is largely due to the fact that real (inflation-adjusted) provincial PSE spending has actually declined over the past decade or so. Since enrolment has risen over this same period, it is not surprising

3 After the effects of inflation have been removed, average undergraduate tuition fees at universities were almost three times as high in 2004/05 as they were in 1990/91 (Statistics Canada 2004).

Figure 2: *Provincial Government Transfers to Colleges and Universities per FTE Enrolment (constant $2003): 1993/94 – 2003/04*



Source: CAUT Almanac 2005, Table 6.4

that real provincial operating grants per full-time equivalent student (FTE) declined in seven of 10 provinces in the decade to 2003/04 (see Figure 2).[4]

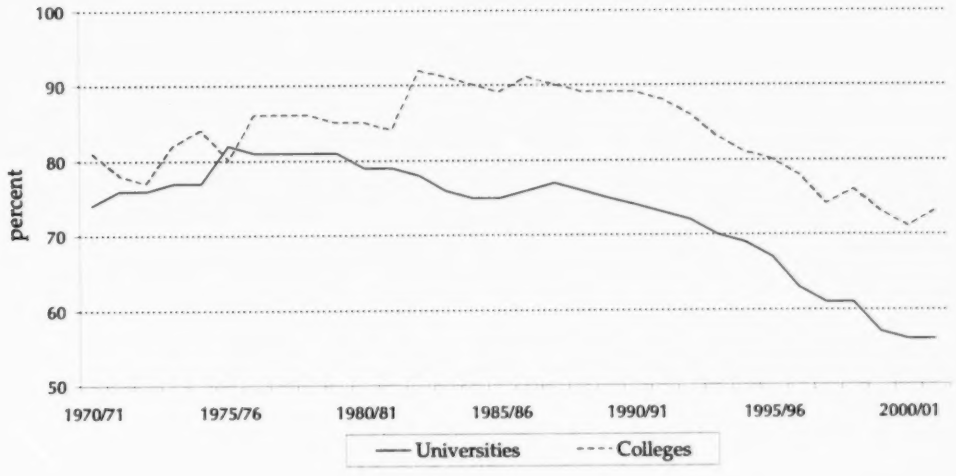
This is no fleeting trend. It is part of a longer-term decline in the proportional significance of provincial funding. Corak et al. (2003) report that per-student funding at the end of the 1990s was about half what it was in the mid-1970s, in real terms. Figure 3 shows that the proportion of total operating expenditures at Canadian universities funded by provincial transfers plunged from over 80 percent in the second half of the 1970s to 56 percent in 2001/02. At other postsecondary institutions (mostly community colleges), the decline was no less significant — from over 90 percent in the early 1980s to 73 percent in 2001/02.

Another important source of public funding is, of course, the federal government, which has long provided money for PSE in various forms.[5] In 2003/04, Ottawa spent just under $5 billion on PSE; about 40 percent of that went for student aid (including Aboriginal programs), and the rest was split fairly

4 FTE figures for all provinces for 2001/02 and 2002/03 and all college FTE data since 2000/01 are projections based on existing data.

5 Indeed, as early as the second half of the 1950s, Ottawa was providing about a fifth of all spending on universities and over a quarter of all spending on colleges. The federal share of total spending on colleges (including teacher-training and nurses'-diploma colleges) actually peaked at about 43 percent in 1963/64 and remained at over 20 percent until 1967/68. The proportion is even higher for community colleges considered in isolation, which benefited from enormous federal cash infusions in the mid-1960s (Statistics Canada, CANSIM, Tables 478-0004 and 478-0007).

Figure 3: *Percentage of Provincially Funded Operating Expenditures, Canada, 1970/71 – 2001/02*



Source: Statistics Canada, CANSIM tables 478-0004 and 478-0007

evenly between research funding ($1.5 billion) and tax relief ($1.4 billion). This is in addition to the $7.5 billion cash value of the Canada Social Transfer — a fungible block grant to the provinces, some of which is used to support provincial PSE spending.

Back to First Principles: The Objectives of PSE Policy

Provincial governments have, by and large, forfeited their financial hegemony over higher education. In the late 1970s and early 1980s, when the provinces were funding some 80 percent of university operating expenditures and more than 90 percent of college operating expenditures, they could expect to meet a wide range of objectives related to higher education, the foremost of which was to enlarge the system. Now, however, their capacity to use their funding authority to *effectively* pursue a wide range of objectives has been severely reduced.

It is time for the provinces to accept this new reality and to become more discerning about the PSE policy goals they wish to pursue. They can no longer be everything to everyone. What is needed today is a more targeted approach to provincial PSE funding, with a clear focus on specific public policy objectives. I suggest that the best way to set these objectives is to recall why government supports PSE in the first place, and to choose policy goals accordingly.

At the most fundamental level, the primary rationale for, and aim of, government action in this field must be to ensure the equity and efficiency of the PSE system. In a nutshell, equity is achieved when students of the same ability enjoy the same access to colleges and universities. Efficiency requires that at the

margin, the social benefits (both private and public) of pursuing higher education be the same as the social costs. The task for government is to translate these ideals into more tangible objectives and ultimately into workable policies.[6] One sensible way to go about this is to determine why actual outcomes might be inequitable and inefficient, and to give priority to policies aimed at remedying these problems. Economists refer to some of these problems as *market failures*, and there are several such failures that are commonly acknowledged to exist in the PSE market.

The first is a *failure in capital markets*. In the absence of government financial support, many students, especially those from lower-income families, who are otherwise perfectly able and qualified, may not have the opportunity to obtain PSE, either because they can't afford the tuition fees and other expenses, or because they can't afford not to be working. And given these students' lack of collateral, financial institutions will be unwilling to offer them the loans that would make such an education affordable. This is clearly an inequitable outcome that government has a responsibility to rectify.

Another market failure stems from the possibility of *positive externalities*. These are the benefits from economic activity that "spill over" to people other than the transacting parties. Economic theory dictates that if any good or service generates positive externalities, markets will produce too little of it. In the case of PSE, public funding is needed to ensure that enough is produced to equate the social benefits with the costs at the margin; that is, to ensure a socially-efficient outcome. In the context of PSE, positive externalities are the benefits to society of higher education, above and beyond the direct benefits to students in the form of higher future earnings. For instance, university research creates ideas and technologies that can be widely adopted and applied to improve the country's standard of living.

Positive externalities may also result from the training of PSE students, who not only benefit directly in the form of higher productivity and earnings, but who might be expected, as a result of their training, to be of benefit to the rest of society. Such benefits might include improving the quality of the democratic process, acting as socializing forces, lowering the crime rate, facilitating greater social cohesion, and so on.[7] This is a more contentious argument, largely because the non-private benefits of higher learning are extremely difficult to verify and measure. On the other hand, in countries such as Canada, it is widely agreed that the "spillover" benefits of primary and secondary education are so great they should be compulsory and free. It is difficult to imagine these benefits suddenly disappearing when it comes to postsecondary education (Laidler 2002, 22).

Finally, the government might intervene to overcome market failures that result from *imperfect information*. For instance, colleges and universities undoubtedly know more, *ex ante*, about the quality of their programs than the students do. Another important kind of information in the PSE system involves the signals that students receive from the labour market about the jobs and salaries

6 Laidler (2002) provides a useful discussion of some of the difficulties of achieving these goals.

7 For a careful discussion of externality-related issues, see the introductory essay by David Laidler in Laidler (ed.) (2002). Issues associated with the private and social returns to human capital in Canada are a major theme of this book. For a very useful recent summary of attempts to measure education externalities, see Davies (2003).

available to graduates of different fields of study; and the signals that students send to educational institutions in the form of enrolment patterns. From this perspective, the responsibility of government is to do all it can to remove the obstacles — sometimes arising from other government policies — that prevent these signals from being sent.

Priority Policy Objectives

Several policy objectives pertaining to higher education — accessibility, quality, and responsiveness — follow readily from these rationales for government intervention. Government policies that pursue these objectives can help overcome the market failures described above and thus help to make postsecondary systems more efficient and equitable.

Accessibility — Policies that improve access to postsecondary schooling can help address both capital market failures and the externalities arising from human capital creation.[8] By subsidizing the cost of education — through funding institutions, or providing student aid — governments help to overcome capital market failures and enable larger segments of the population to attend college and university. Moreover, policies that help increase participation in PSE end up increasing the scale of PSE, thus reducing the allocative inefficiency resulting from the existence of positive externalities from PSE.

Quality — PSE is not an end in itself. It is about the generation and application of knowledge for the purpose of individual and societal advancement. The quality of postsecondary instruction and research is thus of critical importance. Yet, it is not always easy for students to ascertain, in advance, whether they will be getting a "quality education." Governments can influence the quality of their education in a number of ways. Most fundamentally, they can ensure that institutions can obtain, from whatever source, the money and resources needed to produce a high calibre education. It is highly doubtful that more money always means more quality, but it is certain that quality requires enough money. Second, by controlling the certification of PSE programs and courses, and regulating entry into the market — or by mandating an independent third party to do so — the government can help assure students that they are, in a sense, getting what they asked for (and increasingly have paid for).[9] Beyond this, it behooves government to ensure an acceptable quality of education since this will maximize the social benefits of PSE.[10]

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8 "Accessibility" is sometimes used to refer to the objective of increasing participation among particular underrepresented groups, such as indigenous or disabled students. I use the term specifically in relation to the ability of qualified students from low-income families to overcome financial barriers and attend PSE institutions.

9 I thank John Richards for pointing out that governments that seek to correct information asymmetries by awarding monopoly powers to professional associations (such as accountants and doctors) and in this case, to educational institutions, face a tradeoff between lower transaction costs arising from self- or state-regulation and the social costs of monopoly power, be this through higher prices or less choice for the public.

10 The link between quality of instruction and the private benefits of PSE to the student may be more tenuous, at least in the short run. The "signaling" argument that people undertake ....

Responsiveness — The economy is dynamic and constantly evolving. As creators and repositories of much of the human and knowledge capital that drives economic growth, PSE systems need to be responsive to changes in the labour market. Yet as a result of imperfect information, capital-market constraints, and other rigidities that distort the choices made by both institutions and students, PSE systems are less responsive to the labour market than they should be. The social inefficiencies that result from these market failures can be mitigated by policies that allow and encourage institutions and students to respond to economic signals.

These three objectives should be integral to provincial PSE policy in Canada. Any other political or economic objectives that governments may have in relation to PSE ought to be considered secondary to the ones listed above, especially in light of the proportionately diminished funding role of the provinces and their reduced ability to meet a wide range of objectives.

The Importance of Incentives: PSE Institutions as Agents

Important as it is for the provinces to have clear goals for the purpose and operation of PSE, the fact is that universities and colleges may have different goals, or at least priorities.[11] To give a simple example, institutions faced with tight budgets and wishing to cut costs may be forced to increase class sizes, thus potentially reducing the quality of instruction from the perspective of the individual student. One way for the government to deal with this is to provide funding in a way that creates incentives for PSE institutions to work towards the fulfillment of the government's objectives.

Economics teaches us that incentives matter. This is particularly true when one entity — in this case a university or college — performs services on behalf of another — in this case the government and the public. A conceptual framework that offers useful insight into such an arrangement is what economists like to call the *agency or principal-agent* model. Agency models, in their simplest form, have three key elements:

- There is a principal that requires a certain activity to be undertaken, the goal of which is to bring about an outcome in line with the objectives of the principal.
- The principal arranges for one or more agents to carry out this activity, which is unobservable in the sense that the principal cannot directly scrutinize or control the way in which the agent goes about its tasks; however, it is able to monitor the outcome. There is an assumed link between the quality of the agents' performance and the degree to which the outcome correlates with the principal's objective.

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footnote 10 cont'd

....higher education simply to send a message to prospective employers about their ability implies that the actual learning that takes place (or doesn't) is effectively meaningless.

11 It may also be that there will be tradeoffs between several of these objectives, such as accessibility and teaching quality. These are choices that governments will have to make, again taking into account the question of incentives, which is discussed in this section.

- Since the activity is expensive, and since the principal and agent may well have different (or even opposing) objectives, agents must be reimbursed by a payment mechanism that creates incentives for the agents to perform the tasks in a way that produces outcomes in conformity with the objective of the principal.

The real value of the agency model is that it shines a light on the importance of incentives. Its applicability to the issue of higher education is fairly obvious. The primary principal in Canada is provincial-level government, which has constitutional responsibility for the provision of PSE. The agents are the universities, colleges and vocational schools that carry out the enterprise of PSE. And the mechanism is the system of grants and other types of support, financial and otherwise, that provincial governments give to postsecondary institutions in order to promote the enterprise of higher education.[12]

In reality, of course, the picture is a lot messier than this. For one thing, there are many principals when it comes to PSE in Canada. In addition to the provinces, both the federal government and the private sector — including students — provide significant parts of the total system funding and therefore have a claim to act as interested principals. Moreover, the institutions are expected to carry out more than one task. Most notably, institutions in the university sector perform two distinct, though related, activities — teaching and research. Both of these characteristics of higher education have important implications for the design of funding mechanisms. And beyond drawing our attention to the usefulness of creating beneficial incentives, agency theory helps to highlight these implications.

Human Capital and Knowledge Capital: Agency with Multiple Tasks

There is some benefit in thinking of PSE as a kind of production process, in which universities, colleges and vocational schools are like firms that, by offering instruction to students, produce human capital — a cadre of skilled and productive members of society. This teaching function is common to all PSE institutions, but in the case of universities, it is coupled with the production of knowledge capital — the stock of new ideas, innovations and technologies stemming from scholarly research. Universities are therefore multi-product firms that simultaneously produce human capital and knowledge capital. It is generally accepted that there are technical efficiencies arising from the bundling of these activities.[13]

However, agency theory tells us that when an agent has two tasks, one of which — in this case research — can be more readily observed and measured by the principal, than the other — instruction — then there will be a tendency for the agent to reduce its effort in the latter.[14] (While research can be measured by

12 There is, of course, another agency issue inherent within this one, in that the Canadian public (as the principal) has delegated the responsibility for management of the PSE system to provincial government (as the agent).

13 See Laidler (2002; 2003).

14 The seminal paper in this "multi-tasking" literature is Holmstrom and Milgrom (1991). The quality of instruction is sometimes assessed indirectly through the employment rates and ....

volume and calibre of publication, the quality of instruction is notoriously difficult to measure.) Put another way, if the principal values the task that is difficult to observe and measure, it will have to design the funding mechanism so as to *induce* the agent to produce quality results in relation to that task. The relevance of this result for PSE is clear: provincial funding mechanisms must provide incentives for institutions to ensure a high quality of instruction. Regrettably, at present, they do not.

Hegemony Ended: Agency with Multiple Principals

In the 1970s and 1980s, the provinces — which had both constitutional and funding powers at their disposal — were largely free to set the direction of PSE. Since then, however, the landscape has been dramatically altered. First, as documented above, the proportion of system funding coming from the provinces, which was already in decline, fell rapidly in the 1990s. As a result, tuition fees shot up both absolutely and as a proportion of total system funding, transforming the student population into an important principal in the PSE system, if it wasn't already. Provincial funding cuts have also made colleges, and especially universities, increasingly open to overtures from corporations wanting to become more involved in the PSE sector, especially by funding research. In 2002/03, about 14 percent of sponsored university research in Canada was funded by business, through donations, grants and contracts (CAUT 2005). Needless to say, corporate funding of research is well targeted towards fields that are either more profitable (for instance, engineering and medical or genetic research) or of specific commercial interest.[15] This makes the corporate community an increasingly important principal, at least as far as the research function of universities is concerned. Moreover, in the second half of the 1990s, the federal government began a series of carefully targeted initiatives[16] designed to meet clearly defined policy objectives. The effect of these initiatives was to give "remarkable force and direction to both federal policy and university behavior" (Cameron 2002) and to proclaim the re-emergence of Ottawa as a significant and active principal in PSE.[17]

As a result of these changes, there are now numerous principals with an interest in PSE — the provincial governments, the federal government, corporations, and students — each of which provides funds to the system, and

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footnote 14 cont'd

.... incomes of graduates, student or employer satisfaction surveys, student retention rates, rankings of institutions by media publications, and measures such as student-faculty ratios and average faculty contact hours. As for research, the incentive to produce is provided not only by ease of measurement, but also by peer pressure.

15 Payne (2003) argues that it is not only private research funding that may be subject to special interests. She suggests that the allocation of earmarked federal research funding in the United States may be influenced by lobbying.

16 These include the establishment of networks of Centres of Excellence, the Canada Foundation for Innovation, the Millennium Scholarships, the Canadian Institutes of Health Research, the Canada Research Chairs program, funding for the indirect costs of research, Canada Education Savings Grants, and Canada Study Grants.

17 This is not new. Ottawa has provided funds, and taken an active interest in PSE at various times since early in the 20th century (Cameron 1991).

each of which has its own goals. Agency theory, and specifically *common agency* theory, which describes situations with more than one principal, each of which is able to influence the actions of the agent, yields important insights here.[18] Most important, it predicts that the greater the number of principals, the less effective each can be in using payment incentives to influence the behaviour of agents. This is because "each principal tries to free-ride on the incentives provided by the others" (Dixit 1996, 99).

The agency literature suggests two ways of avoiding the inferior social outcomes arising from lack of coordination between principals. The obvious one is to get the principals to come together and coordinate their funding mechanisms to meet common objectives, to the extent that they exist. The other solution is to give each principal authority over just one of the agent's tasks and responsibility for creating incentives pertaining to that task, but without the ability to provide incentives related to the agent's other tasks. Dixit (1996) argues that such an arrangement can actually lead to a socially preferable outcome. In the application of this principle to PSE, careful thought would have to be given to ways of retaining the beneficial production complementarities between teaching and research, regardless of funding sources.

From the various strands of the foregoing discussion, a number of policy implications emerge for the desirable attributes of provincial PSE funding mechanisms:

- Funding should be targeted to meet a small number of core policy objectives — accessibility, quality and responsiveness.
- Funding mechanisms ought to create incentives for universities and colleges to try to meet these objectives. This is especially important with respect to the objective of improving the quality of instruction since quality is difficult to measure and evaluate, and therefore easy to sacrifice.
- Since both Ottawa and the provinces are providing funding to the PSE system, it is important that they coordinate their efforts so as to maximize the effectiveness of their contributions. It may be preferable for each level of government to become solely responsible for funding specific parts of PSE, such as student aid or research.

The next section describes the funding mechanisms currently used by the provinces and analyzes the degree to which they embody these principles.

Evaluating Current Provincial Funding Mechanisms

PSE funding mechanisms have traditionally been used in Canada mainly to determine the allocation of total government funding between institutions, though there is an emerging awareness that they can be useful in providing incentives for institutions to meet certain goals and standards. There are four general categories of PSE funding mechanisms, each of which is used to some degree in Canada. This

18 The seminal paper for common agency is Bernheim and Whinston (1986). A useful overview of this literature is provided by Dixit (1996), who extends the discussion to the case, relevant here, of multitask, multiprincipal agency.

section describes the key features of these mechanisms and assesses their efficacy, especially in light of the policy objectives outlined above. A more detailed province-by-province description of the mechanisms being used in Canada is given in the Appendix.

Incremental (Historical) Funding Mechanisms

Under incremental (or historical) funding, the amount of institutional funding allocated in a particular year is based on the amount allocated in the previous year.[19] Each institution receives more or less the same percentage increase (or decrease) in operating funding in any particular year, sometimes with adjustments made for changes in the cost of living, collective agreement settlements, and the like.

Incremental funding is popular for its administrative simplicity. From an institution's perspective, it is the least intrusive way in which funds can be delivered, and is a good mechanism when the existing distribution of funds is considered to be more or less satisfactory. Unfortunately, however, incremental funding does nothing to create meaningful incentives for institutions to improve their performance. For instance, it does not encourage professors and instructors to put significant effort into their teaching and thereby ensure a high *quality* of instruction. If these percentage changes were to be differentiated across institutions according to well-specified, instruction-related performance measures, there might be some incentive to improve the quality of teaching, but that is not the way this mechanism is used in Canada.

Formula Funding Mechanisms

Formula funding is an objective procedure that "links resources mathematically to an institution's characteristics" (Marks and Caruthers 1999, 5), notably, the size of the student population.[20] In 2003/04, almost 70 percent of total provincial PSE operating (i.e. non-capital) grants in Canada were allocated using formulas, the most important component of which is full-time equivalent (FTE) enrolment, usually weighted by type of program and sometimes by level of study.

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19 Very often, incremental funding takes the form of block funding; that is, a lump sum, which the institution is free to use as its sees fit. Block funding, which is used in many areas of Canadian public finance, is not so much a funding mechanism as a method of delivering funding.

20 Formula funding has been used to allocate public PSE resources since the 1940s. It was developed in the United States after the Second World War (McKeown 1996,1), and its use in Canada flourished with the rapid growth of colleges and universities in the 1960s. The report of the Bladen Commission (established by the National Conference of Canadian Universities) on the functioning of higher education is often associated with the emergence of formula funding in Canada (DesRosiers and Associates 1997, 5). For other definitions, see for instance Miller (1964) and Layzell (1999). Traditionally, formula funding was used primarily to determine system costs for budgetary purposes. However, as the focus of higher education policy evolved from adequacy and growth in the 1950s and 1960s to equity in the 1970s and 1980s, this mechanism began to be used increasingly for allocative purposes.

Formula funding has several attractive features.[21] It is objective, and thus reduces lobbying, unproductive competition, wrangling and backroom deals. It is considered fair, especially in PSE systems with a number of similar institutions. It can also promote stability and predictability for both the government and PSE institutions. And to the extent that formulas are designed to allocate funding solely on a per-student basis, they can create positive incentives with respect to the quality of teaching. Institutions that do well in this respect will presumably develop a good reputation, attract more students and thus receive more funding.[22]

In practice, however, formula funding, as it is used in Canada, has a number of features that distort or weaken these useful incentive effects. Funding "corridors," for instance, are used in a number of provinces to set upper and lower limits between which total institutional FTEs are allowed to fluctuate without affecting funding levels. The idea behind corridors is to make funding more predictable for institutions and thus allow them to plan with some certainty, since it would take a long and substantial downturn in enrolment to move an institution below the lower limit of the corridor. Whatever their benefits, corridors effectively reduce institutional responsiveness, since they severely weaken the signals about quality and performance that institutions might otherwise have received through patterns of student movement.[23] Moreover, for political reasons, governments have traditionally been unwilling to reduce funding when enrolment passes through the corridor floor, whereas increases in enrolment above the upper limit are normally unfunded. The oft-heard claim by institutions that corridors help protect vulnerable institutions from the actions of others is valid. But corridors also protect stagnant and lower-quality institutions from the success of vibrant and high-quality ones. Another distortion to the student-based aspect of formula funding is introduced by adjustments in formula grants to take account of institutional characteristics that have no bearing on performance (see the Appendix for more details).

Beyond this, formula funding may also create unintended and harmful incentives. For example, in the name of adjusting allocations for equity reasons, formulas may actually encourage institutions to "develop programs in inherently low cost areas that play the role of 'profit centres' that generate revenue" (Laidler 2003, 7). These unintended incentive effects may also lead to a distortion in the mix of programs offered if the formula is based on outdated or otherwise inaccurate calculations of the relative costs of program delivery. Formula funding mechanisms will only be completely free of (unintended) incentive effects if relative funding and cost levels are perfectly correlated across programs, and if the latter are accurately captured by the program weights. This highlights the high administrative costs of having incentive-neutral formulas. It has also been argued that formula funding tends to "reward institutions with higher cost structures" and thus may "contribute to cost increases rather than achieving efficiencies" (Hauptman 2000).

21 See McKeown (1996) for a more comprehensive discussion of strengths and weaknesses.

22 This argument is weakened by the fact that students may make schooling choices on the basis of a variety of other factors, such as convenience of location.

23 The problem is compounded by the fact that institutional FTEs are often based on three-year moving averages, so as to smooth out year-to-year fluctuations.

Strategic Funding Mechanisms

Strategic funding — which has become much more prevalent in the past two decades, especially in the United States — is an explicit attempt to create financial incentives for PSE institutions to adjust their behaviour in line with government objectives. Strategic funding can be non-competitive (an example is "conditional block grants"), in which case all compliant institutions receive the grants. Or it can be competitive, as in the case of "initiative funding," in which case institutions are normally required to submit funding proposals for projects designed to meet particular government objectives, and not all eligible institutions will receive funding.

Like other mechanisms, the various types of strategic funding have strengths and weaknesses. Conditional block grants are normally based on activity rather than outcome, thus allowing the government to encourage specific lines of action. Under initiative funding,[24] on the other hand, the way in which government objectives are met is at the discretion of the institutions Not only is the government freed from the burden of specifying in detail the required practices or outcomes, but institutions are encouraged to find innovative ways of meeting objectives. The disadvantage of initiative funding is that it cannot easily be built into long-term institutional planning and budgeting.

In Canada, a number of provinces allocate a portion of total grants — usually less than 10 percent — through some type of strategic funding. Often the goal is to increase the number of spaces in particular areas, such as health and computer sciences, with the aim of overcoming labour market shortages. Though helpful in some cases, these mechanisms do nothing to correct the underlying labour market rigidities and imperfections that are causing the problems in the first place. For one thing, there is no guarantee that more spaces will be filled if market signals are not working and the wages or salaries for graduates are too low. Moreover, there is often nothing to stop graduates of these programs from seeking higher returns to their education outside of Canada.[25] It would be more effective, in the long run, for the government to try to correct the problems, which sometimes stem from other policies, that are causing the labour market imperfections.

The use of strategic funding mechanisms for this purpose reflects an underlying belief that provincial governments are good at coordinating resource allocation in the PSE system to meet evolving labour market needs. While this may sometimes be true, it is by no means guaranteed. In fact, bureaucratic responses to labour market needs have often proved to be cumbersome, untimely and subject to unhelpful political bargaining. A tremendous amount of information and careful planning is needed to ensure that strategic funding directed to high-priority disciplines does not induce over-spending and the creation of excess capacity in particular disciplines. This is a particular problem if the provincial funding initiative is short-term and the funds are not rolled into

24 This is the type of funding mechanism governing the allocation of federal research grants in Canada and the United States.

25 This is certainly one of the problems that seem to be plaguing the attempts to overcome nursing shortages in a number of provinces, such as Saskatchewan and Ontario, where there is not yet any evidence that strategic funding for nursing programs is helping to ease labour shortages.

future base-funding levels. Institutions in this situation are sometimes left high and dry when the provincial funding comes to an end.

Overall, strategic funding mechanisms may be useful in stimulating growth in training and academic programs where enrolment is lagging behind the needs of the broader public sector and the economy more generally. However, they are of temporary use, at best, for this purpose, and they need to be supplemented by other mechanisms and policies, some of them outside the realm of PSE, that are better aligned with underlying economic signals.

Performance-Based Funding Mechanisms

Performance-based funding (PBF) mechanisms also use incentives, usually with the particular goal of stimulating improvements in the quality and efficiency of services and program delivery. The distinguishing feature of PBF, however, is that it is linked to specific academic, administrative, or financial *outcomes*.[26] It is thus normally provided after these outcomes have been achieved, and is intended to "motivate eligible participants (institutions, units within institutions or faculty) to improve performance or to focus on a high-priority goal" (Folger and Jones 1993, 16).

To the extent that institutional accountability is an important goal of public policy, PBF becomes an attractive mechanism for governments. Not only does it shift the burden of measurement and reporting to the institutions, but it also induces them to find ways of achieving desirable outcomes according to measures that are often based on uncontrollable variables such as student effort and ability. For the same reasons, however, this type of mechanism is not conducive to institutional autonomy and is often unpopular among PSE institutions, in some cases because the effort of gathering the data needed for compliance is hardly worth the financial benefit.

The effectiveness of PBF, as it is used in Canada, is limited by a number of factors. First, where it is in use, it comprises a very small portion (commonly less than 5 percent) of total provincial funding. PBF then becomes more a token gesture than a real force for improved performance and higher *quality*. This problem could be avoided by making institutional performance measures more publicly accessible, on the Internet, without necessarily attaching funding to them. Second, there is the challenge of finding meaningful performance indicators. If PBF is based on tenuous and poorly measured indicators, it may produce unwanted incentives, such as encouraging grade inflation and the lowering of academic standards or, conversely, cherry-picking of prospective students to increase the likelihood of meeting grade-related performance measures.[27] This challenging problem needs to be overcome, with the help of institutions, regardless of whether or not funding is attached to performance measures. Finally, common system-wide performance measures are somewhat antithetical to the

26 See Layzell (1999) for a more detailed discussion of performance-based funding and some analysis of the US experience with it.

27 One way to deal with this latter problem is to limit measurement of retention or graduation rates to those students entering programs with high-school grade-point averages of less than, say, 80 percent.

notion that institutional mandates should begin to be differentiated as a PSE system evolves and matures. A better option would be to have a series of performance measures that must be reported on and some would be chosen by institutions from a broader selection so as to suit their particular strategic orientation.

Overall Assessment of Current Mechanisms

The current funding mechanisms do a very poor job of meeting the criteria summarized at the end of the previous section. The vast majority of provincial funding is delivered as block funding and through formulas or incremental funding mechanisms.[28] This is an opportunity lost. Such mechanisms are a legacy of days gone by, when the main goal of government was to ensure adequate funding for rapid growth and, as this occurred, to treat the institutions equitably. They are thus designed primarily to allocate funds, rather than to influence PSE institutions to make significant changes in their practices in line with the kind of public policy objectives mentioned earlier. Neither do they stimulate the competition between institutions that might lead to innovation, improvements in quality and greater responsiveness to the needs and preferences of the students. This does not mean that they do not create incentives. It does mean, however, that any incentive effects are unintended and often harmful. Perhaps the time for reassessment has arrived.

Student-Based Funding Mechanisms

The funding mechanisms described above are all based on the premise that public PSE funding should be directed to institutions. Institutional subsidies are commonplace in Canada, and around the world, as a way for governments to recognize the social benefits of public education and health by contributing to the operating and capital costs of running schools, hospitals, and other important elements of the broader public sector. In the case of PSE, institutional subsidies allow colleges and universities to lower their tuition fees — students do not have to pay the full cost of their education. Institutional subsidies are attractive because they tend to provide stability and predictability for colleges and universities, while helping avoid the deleterious effects on students of high tuition fees, or "sticker shock." However, as argued above, the drawback is that in practice it is difficult to find and implement allocation mechanisms that are well targeted to meet fundamental policy objectives or that create incentives for institutions to work toward meeting these objectives.

An alternative approach is to use student-based funding (SBF) mechanisms. The defining feature of SBF is that public subsidies are given to students rather than institutions. The most commonly cited example is the voucher system, in which students are given financial entitlements — essentially coupons — that they

28 This is in contrast to trends south of the border, where states have, for some years now, been shifting away from formula funding, in favour of strategic and performance-based mechanisms (McKeown 1996).

put toward the cost of their college or university education. The institutions, in turn, remit the vouchers to the government for payment.

Proposals to introduce SBF tend to generate intense debate. For one thing, it is relatively untried — experience with vouchers for PSE in other jurisdictions is extremely limited. There has been serious debate about the possibility in a number of US states and in other OECD countries, such as Australia, Finland, Germany, and the Netherlands, but only recently, in Colorado, has a formal PSE voucher system been introduced, on an experimental basis.[29] More fundamentally, however, opponents of SBF tend to portray it as part of an attempt to introduce market forces in an area where, it is argued, they do not belong — the public provision of education — as part of a broader "right-wing agenda."

It is unfortunate that the debate on these matters tends to get bogged down by ideology. The intent here is to focus, instead, on the degree to which SBF mechanisms might meet the core policy objectives specified earlier. As with any other policy tool, careful thought has to be given to its design and implementation so as to ensure that undesirable and unintended consequences are avoided. A detailed analysis of these issues is beyond the scope of this *Commentary*. To repeat, the goal here is to consider the potential of student-based mechanisms to promote accessibility, quality, and responsiveness.

Accessibility

It is ironic that critics of student-based funding sometimes claim that this mechanism would harm access to PSE. In fact, the opposite is more likely to be true. Whereas institutional subsidies do indeed allow institutions to lower the "sticker price" of higher education, by their nature they give the same level of support to all students, regardless of whether they are from poor, middle-income, or rich families. This means that for all of its advantages, institutional funding is a "blunt and ineffective tool for achieving equal access" (Finnie and Schwartz 1996, 96).[30] Although it is not necessary for all public subsidies to be progressive (nor does the case for progressivity follow from the agency analysis presented above), it would seem desirable, if it is possible, to make them so.

Indeed, not only are institutional subsidies not progressive, but from a collective point of view, it is commonly argued they are in fact regressive. It is well documented that students from upper-middle-income and high-income families are disproportionately well represented in Canadian universities. Hence, institutional subsidies, which are, after all, funded from general tax revenues, represent a net transfer from lower- and middle-income families to higher-income

29 Details of Colorado's College Opportunity Fund can be found at: http://www.state.co.us/cche/cof/index.html. A more limited application of PSE vouchers in the US is the so-called "GI Bill," under which returning soldiers meeting certain conditions have been entitled, since the Second World War, to receive educational benefits.

30 Further, it has been argued that public funding constraints, which are highly unlikely to be relaxed in light of impending demographic trends, will always lead to the crowding out of PSE spending in favour of other social spending, especially for health care, and to the crowding out of PSE resources specifically targeted to accessibility by those needed for basic operational costs (Barr 2003).

families.[31] A recently published Educational Policy Institute paper (Usher 2004) quantifies this effect, highlighting the regressive nature of institutional subsidies. As unlikely as it may first seem, lower tuition fees supported by indirect subsidies may actually be more harmful to access for students from low- and lower-middle-income families than higher fees coupled with more targeted subsidies, other factors being constant.

The opposing argument, often made by those calling for low or even zero tuition, is that PSE graduates, on average, have higher lifetime earnings, and further, that the total additional taxes they eventually pay effectively removes, perhaps even reverses, this regressivity.[32] This argument, however, confuses *ex ante* and *ex post* income inequality. It implies horizontal inequities between two people with identical income,s only one of whom attended college or university. If a portion of someone's tax payment is notionally considered to be a payment for his or her college education, then he or she is paying less for other public services than a high-school graduate with the same tax bill. Moreover, it ignores the intrinsic, non-economic value of PSE to the individual, since it implies that someone who is unable to extract an income premium from their university education should, other factors being equal, get it "free."

Regardless of one's position in this debate, it is difficult to dispute the proposition that student-based funding allows for a much more targeted approach to accessibility. By suitably specifying the eligibility criteria, the government can use SBF to directly address credit market failures by effectively allocating a larger share of its tuition subsidies to those who need them most. Table 1 shows an admittedly stylized example of the benefits of SBF in this respect. Under institutional funding, all students, regardless of their family's income, pay $5,000 for their education. Under SBF, students from poorer families pay nothing, and those from more well-to-do families pay more. The point is that without changing the total amount of government spending, or the amount of money received by institutions, SBF can improve accessibility for low-income students.[33] And of course, insofar as the government is continuing to subsidize the cost of PSE, albeit in a more targeted manner, it is helping to take account of the social benefits of higher education.

Needless to say, policymakers would have to design an SBF mechanism that promoted accessibility without creating unwanted consequences. For instance, like other income- or means-tested public subsidies to individuals, SBF might dissuade families, wishing to remain eligible, from working as much as they otherwise would. Depending on their design, SBF might also create high effective marginal

31 Corak et al. (2003) show that university participation rates in Canada are considerably greater for students from high-income families. In the late 1990s, the university participation rate for 18- to 24-year-old students from families with pre-tax "permanent" income of over $100,000 was almost twice as high as for those from families with incomes of $50,000 or less. They found no link between income and college participation rates.

32 See Mackenzie (2004) for an exposition of this line of thinking.

33 For the purposes of exposition, this example obviously ignores many real-world issues, such as the difficulty of measuring the true costs of program provision, the implied need for variable effective tuition fees (I will return to this issue below), the existence of cost and price (tuition) differences across programs, etc. The fact that I am ignoring student aid is of no consequence to the argument, since it is excluded from consideration on both sides.

Table 1: *The Impact on Accessibility of SBF*

	INSTITUTIONAL FUNDING			STUDENT-BASED FUNDING		
	Low-income students	Middle-income students	High-income students	Low-income students	Middle-income students	High-income students
Program cost	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Subsidy to institition	$15,000	$15,000	$15,000	$5,000	$5,000	$5,000
Subsidy to student	-	-	-	$15,000	$10,000	$5,000
Net tuition paid by student	$5,000	$5,000	$5,000	0	$5,000	$10,000

tax rates at certain income levels. It is also possible that without the right complementary policies, voucher-type systems would discourage low-income and other under-represented groups from enroling in more expensive institutions or programs.

The possible introduction of SBF would also create political pressure to take non-income factors into account when eligibility or differentiated entitlement values are determined.[34] It has become increasingly clear that attitudinal and cultural factors play a role in the decision to participate in PSE, as do other factors such as parental education levels. However, any attempts to overcome non-income barriers to participation through the design of vouchers would need to proceed with great caution, given the implications for horizontal equity and other basic principles of public finance. Ideally, these issues should be addressed through student aid mechanisms instead.

Responsiveness and Quality

So much for the demand-side effects. Another key consequence of SBF is that public funding follows the student, rather than being tied to the institution, resulting in the potential for substantial and beneficial supply-side incentives. In theory at least, the argument is quite simple. Students would become a primary principal in the PSE agency problem. The seemingly token gesture of paying them instead of institutions would give students the ability to vote with their feet by seeking institutions that offered quality programs, a rich educational experience and other desirable features. The power of choice and competition would be better harnessed to ensure that institutions were alert to every opportunity to compete, innovate, differentiate, improve their performance and respond to the preferences of students. Much more than with institutional funding, SBF could create the incentives needed to produce, and sustain, better PSE outcomes.

34 I have assumed throughout this discussion that SBF would have an income- or means-tested component. This need not be the case, of course, and it does not necessarily follow from the agency arguments presented above. However, there is a strong case for it on the grounds of equity and accessibility.

Several conditions, of course, must be met for the theory to become a reality. First, students and their families would have to be well-informed about PSE options and must be willing and able to make choices on the basis of this information. Second, institutions would have to be induced by these signals to make strategic choices about prices, programming, and market positioning. Are these reasonable propositions?

It is sometimes claimed that students (and perhaps their families) are not necessarily well enough informed about their choices to be granted the sovereignty that comes with market-based allocative mechanisms. This may have been true in the past. In recent times, however, as PSE has become more of an economic necessity, and competition for PSE spaces has heated up, it has become more common for high-school students to do their research about the quality of programs at colleges and universities. They are making increasingly informed and strategic decisions about further education with a view to the job prospects that lie ahead. The power of word of mouth and reputation cannot be underestimated either, as media surveys of postsecondary institutions, such as the Maclean's rankings, become ever more popular.[35] Any remaining lack of information is a market failure that government should be addressing. Many provinces, states, and countries are establishing web-based portals containing all sorts of information about higher education designed to help students make knowledgeable decisions. Moreover, the idea, mentioned above, that governments could publish comprehensive performance measures, rather than merely attach nominal institutional funding to them, would help create the conditions for more enlightened decisions, as well as the incentives for institutions to improve their performance (more on this below).

What evidence is there to support the proposition that educational institutions would actually respond to market forces by seeking to improve their performance? It is instructive to look at the research on the use of vouchers for secondary schools in the US. Caroline Hoxby of Harvard University, who is a leading scholar in this field, has built up an impressive core of research showing that student-based funding increases competition between schools and provides very real incentives for them to improve their productivity and performance.[36]

There is no reason why the same benefits would not flow from the application of SBF to colleges and universities. Indeed, the effect might even be stronger in the world of PSE because of the scope for institutions to differentiate themselves from each other with respect to tuition, program mix, educational approaches and areas of specialization. SBF might therefore, over time, induce competing institutions to try to create a niche for themselves in the market. From a social perspective, this would be a very good outcome, since there is no need for all institutions in a province to strive to be the same. The idea of differentiation is perhaps most pertinent in the case of small, rural or other institutions that are sometimes

35 For analogous purposes, it is worth noting the role that quality and reputation in the K-12 system play in the locational choice of families in larger cities in Canada; good local schools can be a major selling point in real-estate transactions. It is not too much of a stretch to think that similar behaviour, insofar as institutional choices are concerned, can and would take place for PSE, at least in larger cities and regional centres where meaningful choices exist.

36 See, for instance, Hoxby (2000) and Hoxby (2003). Conversely, McMillan (2004) challenges the accepted wisdom that competition leads to greater productivity.

considered vulnerable to the introduction of greater market forces. SBF would provide incentives for some of these institutions to re-think and sharpen their positioning. A small regional university might then seek to establish a reputation as, say, a teaching university of excellence, specializing in a smaller number of disciplines and competing against similar institutions in other provinces and in the US, rather than against large metropolitan research universities in the same province.

Practical Considerations: The Devil Is in the Details

If SBF is such a good idea, why don't we see it everywhere? Part of the reason is fear of the unknown. Consider, for instance, the idea of the income-contingent loan repayment scheme (ICLR), which was considered in the UK for many years before recently becoming a reality. In the end, one of the forces for change was observation of the experience with similar schemes that had started in New Zealand and Australia. For all the shortcomings of the Antipodean adventure, the dire predictions of those who claimed that ICLR would harm accessibility simply did not materialize. Tony Blair and others were able to draw on foreign examples to help allay the fear of change. In the same way, political leadership will be needed, in Canada and elsewhere, to explain the benefits of a shift to SBF and to promote a reform of PSE funding.

Beyond this, it is important to remember that SBF is not a guaranteed panacea. There are some very real practical issues that would need to be sorted through in preparation for a realistic move towards SBF. These include the following:

- determination of eligibility criteria;
- design of reimbursement structures, including the rate at which entitlement levels diminish with rising family income;
- differentiation of benefits for non-income related factors such as college versus university and undergraduate versus graduate studies, and for different programs;
- development of measures to help institutions cope with the reduced reliability and predictability of funding;
- inclusion of measures to prevent institutions from cream skimming; that is, trying to attract the best students and keep others out.

The difficulty of resolving some of these issues should not be underestimated. Neither, however, should it be an excuse for inaction. Valuable lessons have been learned from the increasingly widespread use of SBF mechanisms in K-12 education, and these can be applied, with necessary adjustments, to PSE.

Coordination of SBF with Tuition Fee and Student Aid Regimes

As highlighted in the simple numerical example above, income-tested SBF would result in different tuition fees for students from different income backgrounds. It is important, then, that any consideration of SBF take place within the context of a review of tuition-fee and student-aid policies. Since SBF would be accompanied by

reductions in institutional subsidies, governments would have to work with institutions to establish a tuition fee regime that satisfied a number of principles.

First, between the scaled-back institutional subsidies, the revenue from SBF and tuition fees, institutions must have access to the per-student operating revenue they need to provide high-quality instruction. Second, institutions would need the flexibility to vary tuition fees in order to cover the different costs of delivering different programs. At present, tuition fees are highly regulated in Canada, although in recent years most provincial governments have allowed colleges and universities to charge higher or somewhat "unregulated" fees for a small number of graduate, professional, or high-cost programs.[37] Greater deregulation along these lines would be likely to lead to higher fees in high-cost programs, but potentially lower fees in, say, basic arts programs.[38] Policy movement in this direction has already taken place, or is taking place, in a number of other countries, such as New Zealand, Australia, and the United Kingdom.

Finally, deregulation of tuition fees would need to be undertaken in conjunction with an enhanced and carefully targeted package of government-funded student assistance. Any movement in this direction could only be feasible and desirable on the grounds that accessibility, especially for students from low- and middle-income families, would not be adversely affected. Policy options in this respect are numerous, ranging from the expansion of existing grants, to the adoption of income-contingent loans and repayment schemes, graduate taxes, and various deferred-fee schemes. Careful consideration of each, though far beyond the scope of this *Commentary*, is well warranted.[39] Policy makers would have to take great care to explain and sell a shift of this magnitude to the public, and to design new funding schemes carefully. Special efforts would also have to be made to reduce non-financial barriers to PSE participation by students from low-income families. Examples include lack of information, higher rates of debt aversion, and other cultural or attitudinal obstacles. Careful scrutiny of the likely effects on participation rates, returns to education, student debt and institutional performance would also be crucial.

The preceding discussion highlights the integrated nature of PSE funding policies. It would be unwise to consider a reform of funding mechanisms in isolation from system funding needs, tuition fee policies and student aid. The interconnections between these features of a PSE system go a long way to determining its accessibility, quality, and responsiveness. In this regard, the conceptual framework underlying the report of former Ontario premier Bob Rae in his recent review of that Province's PSE system (Rae 2005) is a most welcome contribution to the debate. Sadly, it is one that has been somewhat overlooked in

37 British Columbia recently lifted its cap on tuition increases, allowing universities to set their own fees. In Ontario, tuition fees are currently frozen, though the report produced by former Premier Bob Rae called for greater institutional autonomy in setting fees, subject to certain provisions pertaining to accountability and student access.

38 The suggestion to allow greater variation has been made by others, including Laidler (2002; 2003) and Finnie and Schwartz (1996).

39 Of course, none of these suggestions are new, and some have been implemented in other countries. Further, there is a growing body of Canadian research on the merits of reform to student assistance policies. Notable references include Carmichael (2004), Finnie (2001), Finnie and Schwartz (1996) and Milligan (2002).

all the fuss and excitement about the amount of additional PSE spending recommended (and ultimately granted by the McGuinty government). Although the "Rae Report" did not recommend SBF as set out here, it explicitly acknowledged the interconnections referred to above, and it laid the foundations for a regulatory framework for tuition that balances institutional and social needs. Specifically, the framework must balance the need of institutions for adequate operating revenue and the autonomy to set program-differentiated tuition fees, with the social need for student access. The kind of deregulated tuition being advocated here, then, is not about unfettered freedom for institutions to set fees. It is about institutions effectively earning greater tuition-setting autonomy by showing that they are taking steps to ensure that the education they are offering is accessible and affordable to students of all backgrounds.

SBF in a Federal System

Finally, one implication of SBF in a federal system such as Canada's, where PSE is managed provincially, arises from the possibility that students would study out-of-province, leading to a situation in which funding from one province could end up with institutions in others. This interprovincial "leakage" could be resolved in a number of ways. The most obvious method would be to avoid it by having the issuing province restrict funding to institutions within its own jurisdiction. Another option would be to have a series of reciprocal arrangements between provinces that facilitated transfers on the basis of net student flows.[40] Further consideration would need to be given to the incentives generated by each option, with particular focus on the implications for the accessibility, quality, and responsiveness of PSE systems.

Policy Directions

Several broad policy implications follow from the foregoing discussion. First, it is time for provincial governments to reconsider their role in the PSE system and to choose carefully the objectives they wish to pursue. I have argued that these objectives ought to be few in number and closely associated with the underlying rationales for government involvement in PSE. Second, funding should be carefully targeted towards meeting these objectives, and should be provided through mechanisms that create incentives for institutions to work towards meeting them. Incentives matter, but current mechanisms either don't provide them or provide the wrong ones. Third, and closely related to this, the potential benefits of adopting student-based funding mechanisms cannot be ignored, and serious consideration ought to be given to the design decisions associated with the adoption of some form of SBF. Finally, provincial governments must acknowledge the important contributions of the federal government to the PSE system and

40 Similar arrangements already exist for accessibility purposes. For instance, under the Regional Transfer Arrangement administered by the Maritime Provinces Higher Education Commission, each of the three Maritime provinces provides funding for any of its university students enrolled in programs in the other two provinces if those programs are not offered in the home province.

work with it to develop a coordinated approach to PSE funding. Ottawa's approach to this issue has been increasingly effective, and the provinces have much to learn from their federal counterpart. In brief, new funding methods are needed to cope with the new realities of PSE in Canada. Although a detailed study of new alternatives is beyond the scope of this *Commentary*, the analysis undertaken here points to a number of practical steps for the improvement of PSE funding mechanisms that provinces ought to be considering.

Switching from Institutional to Student-Based Funding

Institutional funding mechanisms do an average-to-poor job of meeting the objectives emphasized throughout this paper. As currently used, they create very few incentives for institutions to improve the quality of their performance, or to become more responsive to trends in student demand and labour markets. A potentially more efficacious option would be to replace a significant part of current institutional subsidies with student-based funding. Institutions would continue to receive a basic amount of direct funding based on actual or moving-average enrolments. The remaining amount of public "operating" funding would be given directly to students, according to needs-based assessment criteria, perhaps in the form of a carefully designed voucher scheme. The third element of such a scheme would be a more deregulated tuition regime, in which institutions would have more freedom to set differentiated tuition fees, subject to meeting accessibility criteria. I have explained some of the potential benefits of SBF in the previous section and have drawn attention to some of the tricky design and logistical issues that would need to be addressed. In theory, at least, the benefits from such a shift would seem to be significant, and they certainly warrant further consideration.

Reforming Institutional Funding

Understandably, a significant shift in the mix of funding mechanisms would have to be well explained and thoroughly debated. A change of this magnitude is always politically charged and may take time to achieve. In the intervening period, provinces could take several steps that would help give their systems time to adapt and would buy time for policymakers to explain the reason for, and consequences of, the changes. One would be to continue to direct the vast majority of subsidies to institutions but to base those subsidies more directly on the number of students attending each institution — that is, to continue to use a variant of formula funding. However, it would exclude some of the bells and whistles described earlier that limit the responsiveness of funding levels to patterns of student choice. The idea would be to make institutional funding mechanisms more transparent and to harness some of the beneficial incentive effects of pure SBF. Another useful step would be to have public reporting of performance measures, some of which would be common to all PSE institutions, and some of which colleges and universities would be free to choose in line with their own strategic priorities.

Greater Federal-Provincial Coordination

PSE is a policy field in which the potential benefits from coordinated federal-provincial action are significant but curiously under-explored. Both levels of government have a demonstrable interest in the generation of human and knowledge capital, and yet there is very little synchronization of national and regional efforts.[41] Indeed, it has been argued that the federalist structure of PSE public policy seems to do more to impede than to promote change and innovation (Cameron 2002).[42] Both levels of government provide student assistance, PSE-related tax breaks, and in some cases research funding. There is sure to be considerable scope for increased collaboration and coordination on all policy fronts. It may well be that there are bureaucratic economies of scale from coordination and specialization.[43] More important, federal-provincial specialization along different lines of action could help solve some of the "common agency" problems arising in PSE policy.

One possible way forward would be an agreement under which Ottawa would continue to build on its recent initiatives that fund the direct and indirect costs of research. Specifically, Ottawa could divert resources from student assistance to focus on enhancing its research funding and meeting the ambitious R&D goals set in 2002 by Industry Canada and HRDC in their joint contributions to Canada's *Innovation Strategy*. Since many of the social benefits of research are enjoyed nationally, there is merit to this. At the same time, the provinces could focus more of their financial contribution to direct student assistance through some of the instruments mentioned above. Even if both levels of government wished to continue pursuing multiple objectives, it would seem to be timely for them to develop a comprehensive, coordinated plan for meeting common ones. At the very least, this would reduce bureaucratic messiness, duplication of effort, and help to prevent one level of government from undermining the objectives and related incentives of the other level of government.

Concluding Comments

Canadians have grown accustomed to good-quality, relatively low-cost postsecondary education (PSE). Against a policy backdrop of large public subsidies to educational institutions and regulated tuition fees, the postwar period witnessed enormous PSE growth in Canada. However, over the past few decades, a series of gradual but profound changes have occurred in the nature and significance of PSE, and PSE funding patterns — not least the notable reduction in

41 The recent efforts made by the Council of the Federation to adopt a more coordinated approach to PSE, and to seek the involvement of the federal government in this process, are a step in the right direction. However, much work and political will (on both sides) is needed to turn this rhetoric into meaningful collaboration.

42 Cameron (1991) points out that PSE has brought out the good and the bad of fiscal federalism.

43 A memorandum of agreement created in May 2004, between the Government of Canada and the Government of Ontario pertaining to joint public service delivery tries to seize on these cost savings. It does not, however, contain provisions relating to student loans. http://www.hrsdc.gc.ca/en/cs/comm/hrsd/news/2004/040513.shtml

provincial funding shares. These changes have gradually exposed the fact that current provincial funding mechanisms are imperfect and out of date. It is increasingly apparent that these mechanisms are poorly targeted and that they fail to create desirable incentives for colleges and universities.

One measure that would ensure that governments got more bang for their PSE buck would be to develop funding mechanisms that make use of incentives and are designed to achieve specific objectives. The provinces need look no farther than Ottawa for an example of how to use incentives and targeted funding to meet specific objectives. The re-emergence of Ottawa as a key player in postsecondary education over the past decade has not just been about funding levels, but rather about *targeted* funding. Over this period, the federal share of total system funding remained fairly constant, proving that it is not necessary to throw extra money at something to have a greater influence on its operation. Moreover, Ottawa has drawn on the power of incentives to achieve its objectives in relation to PSE. To give one example, the Canadian Foundation for Innovation provides incentives for provincial governments to harmonize their own support of university research in such a way as to maximize the amount of federal funding they can get (Cameron 2002). And, of course, federal research funding is distributed competitively for the most part, with built-in performance incentives.

Indeed, another step in the right direction would be for federal and provincial governments to coordinate their efforts to meet common objectives. In the final analysis, though, the best way to achieve a PSE system that is responsive and accessible and that produces high-quality outcomes is to shift from institution- to student-directed funding. More research and debate about the desirability and likely consequences of such a shift would be timely, because the existing mechanisms for public PSE funding in Canada have had their day.

Appendix: A Description of Funding Mechanisms in Canada

This appendix provides more detail about the PSE operating (i.e., non-capital) funding mechanisms being used in Canada.[1] A summary of these details is shown in Table A1. Two basic facts are immediately obvious from the table: first, almost all the provinces use more than one type of funding mechanism; and second, the vast majority of operating funding is either delivered to institutions as incremental funding or allocated by formula.

Incremental (Historical) Funding Mechanisms

Incremental (or historical) funding is the dominant funding mechanism in four provinces (British Columbia, Manitoba, New Brunswick and Prince Edward Island), as well as for the college systems in Saskatchewan. In New Brunswick, the flat grants to universities (75 percent of unrestricted operational funding) are incremental but calculated as residuals after supplementary grants and (formula-based) enrolment grants have been accounted for. In British Columbia, block funding is provided incrementally, with the added feature that each institution has a delivery target for the total number of FTE students it is expected to enrol. In Saskatchewan, about three-quarters of funding to the Saskatchewan Institute of Applied Science and Technology and one-half of funding for the regional colleges is provided incrementally. In addition, government programs — such as basic education and skills training that are delivered by, or through, the colleges for Saskatchewan Learning — have a global amount of program funding approved by the government, which is then allocated incrementally to institutions. Finally, it is worth noting that in Nova Scotia, an elaborate formula funding mechanism has been devised and is, in principle, operational. However, in practice, the Weighted Enrolment Grant (which is 84 percent of funding) is calculated according to weighted enrolment numbers from 1994/95 to 1996/97. In effect, then, it is historically based. The only exception is the incorporation of enrolment growth at Dalhousie University in the intervening period.

Formula Funding Mechanisms

Formula-based funding mechanisms are being used by six provinces, five of which use them to distribute the vast majority of their operational grants: Alberta, Nova Scotia, Ontario, Quebec and Saskatchewan (universities). All the formulas are based on FTE enrolment numbers weighted by type of program (type of course in Nova Scotia) and usually by level of study. In most cases, the weights are further adjusted to provide additional funding to the following institutions: small institutions to compensate for the lack of economies of scale (Alberta, Nova Scotia and Ontario); institutions with more than one campus (Alberta and Ontario); institutions in remote areas and thus having higher supply and transport costs

1 Since most of the research for this appendix was done in 2004, the data given here refer to the 2003/04 academic year. There have not been any substantial changes to the mechanisms in most provinces since then.

Table A1: *Provincial funding mechanisms*

	Incremental funding	Formula funding	Strategic funding	Performance funding
ALBERTA 18 Colleges 4 University Colleges 4 Universities		**Base funding** (85-88%) FTEs adjusted for: • program cost and mix — all programs assigned an index based on average delivery costs (relative to system-wide averages, that are calculated separately for universities, colleges, etc.); these are then weighted by the program mix at each institution to determine institutional adjustment factors; • economies of scale — for institutions with < 4,000 FTEs, adjustment factors are re-weighted by a sliding scale decreasing from 18% (<850 FTEs) to 2% (3,500-4,000 FTEs) to account for higher average delivery costs for smaller institutions; • multiple campuses — institutional indices adjusted by factors ranging from 2.5% (institutions with between 15-30% of enrolment more than 50 miles from main campus), to 7.5% (institutions with more than 60% of enrolment); • population sparsity — reflect higher supply costs in remote areas.	**Access fund** (10%) • designed to reward emphasis on high priority fields of study as defined by student and labor market demand; • awarded to institutions following the submission of business plans outlining their intention to expand access to high priority credit programs; • approximately $200 million provided over the last four years to create more than 24,000 new postsecondary spaces (the number of postsecondary education seats for health care have increased by over 20% to 12,000); • $40 million for 2003-04 focusing on priority areas such as medical educational programs and broad clinical enhancement initiatives for health education and training programs; • rolled into base funding levels over time.	**Performance envelope** (2-5%) The performance indicators (33% weight each) are: • access; • employment outcomes; • student satisfaction. Also, for the universities, research performance is used as a criterion for granting these funds.
BRITISH COLUMBIA 17 Colleges 6 University Colleges 5 Universities	**Base funding** (>90%) Institutions allocated funds according to the total number of FTE spaces the government has allocated to them • institutions free to choose program mix; • government uses this as a way to promote funded growth at PSE institutions.		**Colleges:** *New Era Grants (??%)* • strategic grants designed to create spaces for high priority areas with skill/labor shortages such as the high tech sector and nursing; • associated with specific delivery targets such as increasing the number of graduates from high priority programs (computer science, electrical and computer engineering, nursing and health programs), expanding on-line access, and establishing permanent British Columbia Leadership Chairs (in the fields of environmental, social, medical and technological research) and British Columbia Regional Innovation Chairs. **Universities** • a small portion of funded enrolment growth is targeted towards specific high priority program areas	
MANITOBA 4 Colleges 4 Universities	**Base operational grants** • Colleges (79%) • Universities (94%)		**Colleges:** *College Expansion Initiative(7% of total college grants)* • set up in 2000-1 to double career and technical programs and meet labor market needs in key economic sectors such as health (25% of total funding to date) and agriculture and natural resources; • $6M/year; over 50 programs funded by CEI to date, at cost of $21M • around 70% of funding to date has gone to Red River College • rolled into future base operating grants *System Restructuring Envelope* (0.3%) • awarded on case-by-case basis; no pre-determined funding level; • not rolled into base funding since aimed at one-off/time-limited projects; • aimed at adopting learning technologies, improving aboriginal participation, etc. **Universities:** *Strategic Programs Envelope* (0.3%) • awarded competitively (not all proposals are funded); • rolled into base funding; • designed to meet needs of provincial labor market.	
NEW BRUNSWICK 1 College (system) 4 Universities	**Universities:** *Unrestricted op. funds* • Flat grant (75% of unrestricted) o ensures stability; o subject to supplementary adjustments. **College:** *Operating grants* (100%)	**Universities:** *Unrestricted operating funds* • Enrolment grant (25% of unrestricted) o 3 year average weighted FTE o broken down by program and level of study		
NEWFOUNDLAND AND LABRADOR 1 College (system) 1 University	**Operating grants** (95%) **Physical plant and equipment grants** (5%)			

(continued)	Incremental funding	Formula funding	Strategic funding	Performance funding
NOVA SCOTIA 1 College (system) 11 Universities		**Weighted Enrolment Grant** (84%) • FTEs adjusted for course mix; • weights adjusted to ensure that revenues equal costs for courses in each weight bin; • funding corridors constructed for every university, using a three year average of weighted enrolments for 1994-95 to 1996-97 so as to promote funding stability. Expansions above upper limit of corridor are unfunded. **Research grant** • covers indirect costs of research not covered by federal grants • recommended to be 34-40% of federal research grants received. **Extra formula grant** (<5%) • Isolation grant — reflects higher costs of operating outside Halifax. Based predominantly on distance from Halifax; • Size grant — to account for higher average delivery costs for smaller institutions, those with < 800 FTEs get an extra 10% of WEG, decreasing by 2% for every extra 100 enrolments. Actual amounts paid are based on institution's share of total system operating grants of $175M. • Part-time students — for institutions in which part-time students comprise 25% or more of total enrolments. • French Language Grant — for Université Sainte-Anne.	**Dedicated Payments** (3.5%) **Targeted funding** (< 2%) • promote innovation and excellence, as well as accessibility for under-represented populations; • universities submit applications under the targeted funding categories, and allocative decisions are made on a case-by-case basis.	
ONTARIO 24 Colleges 18 Universities		**Colleges:** *General Purpose Operating Grant* (78%) FTEs adjusted for: • program mix (weights reflecting delivery costs); • population density; • multiple campuses; • economies of scale; Based on three-year moving average of enrolments-to provide stability. **Universities:** *Basic Operating Grant Envelope* (75%) • FTEs adjusted for program mix (weights reflecting delivery costs); • enrolment corridor to shield universities from funding variations due to enrolment variability. *Accessibility fund* ($216M in 2003-4) • support undergraduate enrolment growth associated with double cohort ***Mission-related Envelope*** (2.4%)	**Colleges** *Access to Opportunities Program* (2%) • targeting computer science and high demand engineering programs. **Universities** *Access to Opportunities Program* (3%) • targeting computer science and various engineering programs.	**Colleges** *Performance Fund* (2%) • graduate employment rates; • employer satisfaction; • graduate satisfaction **Universities** *Performance Fund* (1.1%) Indicators (33.3% each): • u/grad graduation rates; • 6 month employment rates; • 2 year employment rates (note: distributed by institutional share of instructional activity subject to meeting benchmarks). Both colleges and universities receive small amounts of Quality Assurance Funding which is nominally tied to performance levels.
PEI 1 College (system) 1 University	**Operating grants** (100%) • block grants			
QUÉBEC 48 Colleges 18 Universities		**CEGEPs** (96.5%) Adjustments made for: • program level and mix • capital funding • teaching costs • special factors **Universities** (98.5%) Weighted by: • program level and mix, depending on discipline and level of study; • building space (to cover ancillary costs, etc.)		**CEGEPs** (3.5%) Indicator: graduate incomes • not competitively awarded. **Universities** (1.5%) Indicator: headcount of graduates • provided as a bonus; • amount increases with type of degree, ranging from $500 for bachelors to $7,000 for Ph.D.s.
SASKATCHEWAN 21 Colleges 2 Universities	**Colleges** *Base Operating Grants** (75% for SIAST; 53% for Regional Colleges) *SPMC (accommodations) Grants* (18% for SIAST) *Programs Grant* (7% for SIAST and 47% for Regional Colleges).	**Universities:** *Operating Grant Envelope* (97%) (block funding): • instruction (67%) - program-weighted FTEs: 60% - research activity: 30% - community service: 10% • administration (12%) • physical plant (11%) • library (6%) • student services (4%)	**Colleges** • SIAST: small portion (<10%) of Base Operating Grants restricted to high priority programs Around 50% of regional college funding is restricted to high need areas such as nursing (current focus), computer science and forestry programs. **Universities** *Mandated enrolment increases* (2%) • initiated to overcome provincial shortages in nursing staff and doctors.	

Notes:

(1) Percentages shown are of total provincial (non-capital) funding in 2003-04, unless otherwise indicated

(2) The entries for Nova Scotia are based on the funding mechanism adopted (in concept) since 1998-99. The percentages shown are relative to annual statutory grants (MPHEC transfers are

(Alberta, Nova Scotia and Ontario); institutions with greater building space (Quebec and Saskatchewan (universities)); institutions with large numbers of part-time students (Nova Scotia); and institutions with special language needs (Nova Scotia and Ontario). At least three provinces provide grants explicitly designed to cover the indirect costs of research not covered by federal grants: Quebec (about $25 million in 2003/04); Ontario ($27.8 million in 2003/04); and Nova Scotia.[2]

In several provinces, formula program weights are based on econometric studies, some of which are adapted from those in other provinces and many of which are quite dated. It is for this reason that in Nova Scotia the weights have been revised to ensure that the grant revenue and program costs for each group of courses are equal. In Ontario, university formulas have been adjusted more than a dozen times in the past two decades, and the recent Rae Report again recommended that they be simplified and made more transparent. The administrative cost of formulaic mechanisms may help explain British Columbia's move away from such mechanisms.

Strategic Funding Mechanisms

Six provinces (Alberta, British Columbia, Manitoba, Nova Scotia, Ontario and Saskatchewan) currently allocate a portion of total grants through strategic funding mechanisms in one form or another. For the most part, these mechanisms are used to expand the number of spaces in high-priority fields of study, such as nursing, where there are current or projected labour market shortages and in emerging fields of study, such as the computer sciences. In most cases, only a small percentage of operating grants (between 2 and 7 percent) are disbursed through strategic mechanisms. However, they comprise almost half of all provincial operating grants to Saskatchewan's regional colleges and a tenth of those in Alberta. Although these funds are targeted for use in specific program areas, more often than not they are eventually rolled into base operating grants, thus being subsumed into future block funding levels.

Performance-Based Funding Mechanisms

The use of performance-based mechanisms has not flourished in Canada to the degree it has south of the border. Three of the four biggest PSE provinces (Alberta, Ontario and Quebec) do have some form of performance-based funding, linked to specific student or institutional outcomes.[3] In each case, however, performance funding comprises less than 5 percent of total provincial funding.

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2 The Nova Scotia Council on Higher Education, whose reports formed the basis of the current funding mechanism in that province, recommended that the provincial government provide grants to universities worth between 34 to 40 percent of the value of the federal research grants received by those universities (NSCHE 1998, 9). This is estimated to provide about $7.3 million of additional research funding.

3 In a number of provinces, such as Manitoba, steps have been taken to increase institutional accountability to governments, without tying the associated regulatory requirements to funding levels.

Some Cross-Provincial Observations

The heterogeneity of funding mechanisms across provinces is no doubt due, at least in part, to differences in the circumstances of the various systems. But that alone does not explain why provinces of roughly comparable size and structure, such as Alberta and British Columbia, use such different funding mechanisms. Moreover, Manitoba abandoned formula funding in the late 1970s because the University of Manitoba was so much larger than the other three universities that its needs were not comparable to theirs.[4] Across the border, however, the perceived funding inequities between the University of Saskatchewan and the much smaller University of Regina was a primary reason for the recent *adoption* of formula funding. Likewise, it is interesting to note that only some provinces use different mechanisms for colleges and universities. Taken together, these patterns suggest that the current mechanisms have resulted, at least partly, from bargaining processes, bureaucratic forces and historical developments, and not necessarily from a desire to maximize the efficacy of provincial funding.

4 A similar argument applied to Red River College, vis-à-vis the other three colleges in Manitoba.

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